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# KIRTLANDIA

THE CLEVELAND MUSEUM OF NATURAL HISTORY

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CLEVELAND, OHIO

DECEMBER 30, 1967

NUMBER 2

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## PRELIMINARY DESCRIPTION OF A NEW GONIOPHOLID CROCODYLIAN

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### ABSTRACT

A goniopholid crocodile, *Eutretauranosuchus delfsi* n.g., n.sp. from the Morrison Formation, Jurassic, near Canon City, Colorado, is described. The new crocodilian is unique in showing a palatal opening anterior to the internal nares and medial to the palatal vacuities.

### INTRODUCTION

In 1957, a party under the leadership of Edwin Delfs, M.D. collected fossil reptilian remains from the Morrison Formation near Canon City, Colorado. Included in this material was a fairly complete skeleton of a small crocodilian. This, along with other reptilian remains, is now in the collection of the Cleveland Museum of Natural History. When the crocodilian material was prepared, it was evident that it possessed goniopholid characters. Other characters that are unique indicated a new genus for which Dr. Delfs suggested the name *Eutretauranosuchus* signifying "doubly pierced palate"). The material was assigned to me for description. I wish to express my thanks for this privilege to Dr. Delfs and to the authorities of the Cleveland Museum.

The illustrations of the type are derived from photographs made by the Photographic Department of the American Museum of Natural History.

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\*Dr. Mook died in October, 1966, while this note was in press.

## SYSTEMATIC DESCRIPTION

## Order CROCODILIA

## Suborder MESOSUCHIA

## Family GONIOPHOLIDAE

## Genus EUTRETAURANOSUCHUS, new genus.

*Diagnostic characters:* The skull is moderately long in proportion to its breadth. There is a pronounced depression at the base of the snout, and slightly developed preorbital ridges, suggesting the condition in the living caimans. The postorbital bars were clearly subdermal. The prefrontal bones extend farther forward than the frontal. The nasal bones widen anterior to the prefrontal tips. The nasal bones do not enter the external narial aperture at the surface. The frontal bone extends forward to the level of the eleventh maxillary teeth. The frontoparietal suture is located rather far back, permitting a considerable participation of the frontal in the anterior borders of the supratemporal fenestrae. The interfenestral bar is relatively broad and flat, and its edges are slightly uprolled. The supratemporal fenestrae are of moderate size. They are elongate oval in shape. The quadratojugal bones have sharp spines, resembling those of *Crocodylus*.

The internal narial aperture is unusually long and slender, its length being several times its breadth, and relatively much longer than in other crocodilians of its general size. It appears to be divided, at the palatal surface, at least, by a slender bar of bone. The composition of this bone is not clear, but it may be made of slender anterior processes of the pterygoid.

Anterior to the internal narial aperture is another opening, similar in character to it, but smaller. Like the internal nares it is divided by two slender bones, which appear to be processes of the palatines. The presence of this opening is unique among crocodilians.

The palatine fenestrae are large and are broad anteriorly. Their anterior ends lie opposite the eighteenth maxillary teeth. The pterygoid, omitting the anterior processes mentioned above, is short and broad. The palatine bones extend forward to the level of the thirteenth maxillary teeth.

The lower jaw is long, slender and unusually low anteriorly. The symphysis includes eight mandibular teeth on each side. The splenial bones enter the symphysis. They extend forward to the level of the seventh mandibular teeth.

Twenty-four alveoli are present in each ramus. Of these numbers 3 and 4 are slightly larger than the rest which are subequal in size. Numbers 1 and 2 appear to open on the external surface of the jaw. The first eighteen alveoli have separate walls, nineteen to twenty-four merge together. Numbers 5 to 11 are visible from the side. The external mandibular fenestrae are small and are oblique in position. They are much longer than high. The anterior internal fenestra is moderately large and the posterior one is small.

The articular process is excessively short and the articular surface, that articulated with the quadrate, is also very short.

The teeth, such as they are preserved, are rather small, are striated, and slightly bladed.

The posterior external portions of both rami are distinctly pitted, the anterior portions only slightly so.

The vertebrae are amphicoelous, and are goniopholid in character.

The limb bones are typically crocodilian and appear to be rather short for their breadth and in proportion to the dimensions of the skull and vertebrae.

Type: *Eutretauranosuchus delfsi* Mook.

*Eutretauranosuchus delfsi*, new species

Type: Well-preserved skull and jaw; most of the precaudal and a few caudal vertebrae; a few limb bones; scutes; Cleveland Museum of Natural History, No. 8028.

Type locality and level: Red Canyon, north of Canon City, Colorado; lower level of the Morrison Formation, upper Jurassic.

Diagnostic characters: As for the genus, of which this species is the sole representative.

The name is given in honor of Dr. Edwin Delfs in recognition of his services to paleontology in the discovery of this and other specimens of fossil reptiles in the Canon City area.

## MEASUREMENTS

## SKULL:

	mm
Length, tip of snout—occipital condyle .....	218 est.
Length, tip of snout—posterior border of cranial table .....	207 est.
Length, base of snout—occipital condyle .....	88
Length, base of snout—posterior border of cranial table .....	80
Breadth across base of snout .....	76
Breadth across quadratojugals .....	108
Breadth across cranial table, anterior end .....	61
Breadth across cranial table, posterior end .....	68
Length of right orbit .....	22.5
Breadth of right orbit .....	16
Length of left orbit .....	24
Breadth of left orbit .....	18
Length of right supratemporal fenestra .....	25
Breadth of right supratemporal fenestra .....	14
Length of left supratemporal fenestra .....	27
Breadth of left supratemporal fenestra .....	15
Length of right palatine fenestra .....	43
Breadth of right palatine fenestra .....	24
Length of left palatine fenestra .....	43
Breadth of left palatine fenestra .....	27
Breadth across pterygoids .....	85

## LOWER JAW:

	<i>Right ramus mm</i>	<i>Left ramus mm</i>	<i>Both rami together mm</i>
Length, total .....	256	261	-----
Length, tip—posterior end of tooth row .....	159	-----	-----
Length, posterior end of tooth row— end of articulae .....	111	-----	-----
Length, symphysis .....	54	53	-----
Length, external mandibular fenestra .....	35	38	-----
Length, articular (articulating surface plus process) .....	39	37.5	-----
Height, external mandibular fenestra .....	11	9	-----
Breadth across symphysis .....	-----	-----	28

## COMMENTS

The characters of the palate present a considerable departure from the condition usually seen in mesosuchian crocodiles. The very large internal narial aperture, together with the anterior opening, which must have entered the narial passage are unique. They indicate specialization among the goniopholids comparable to the wide range of specializations that may be noted among the Crocodilidae in the Eusuchia.

MANUSCRIPT RECEIVED MARCH 6, 1965



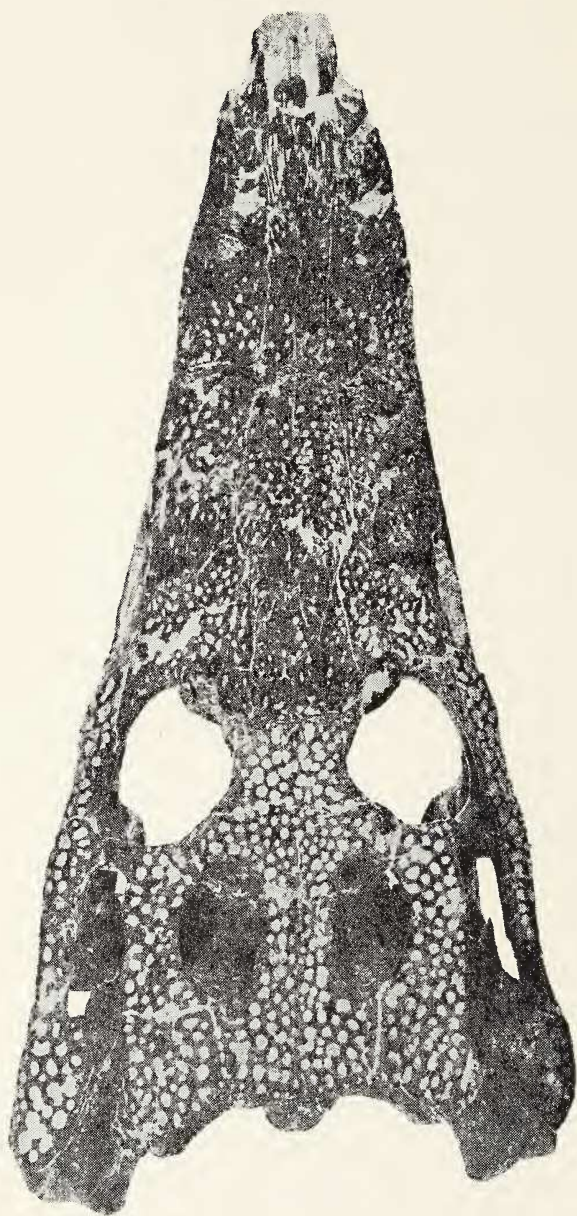


Plate 1. *Eutretauranosuchus delfsi* n.gen., n.sp. Type, skull, C.M.N.H. No. 8028. Superior view. Two-thirds natural size.



Plate 2. *Eutretauranosuchus delfsi* n.gen., n.sp. Type, skull, C.M.N.H. No. 8028. Inferior view. Two-thirds natural size.

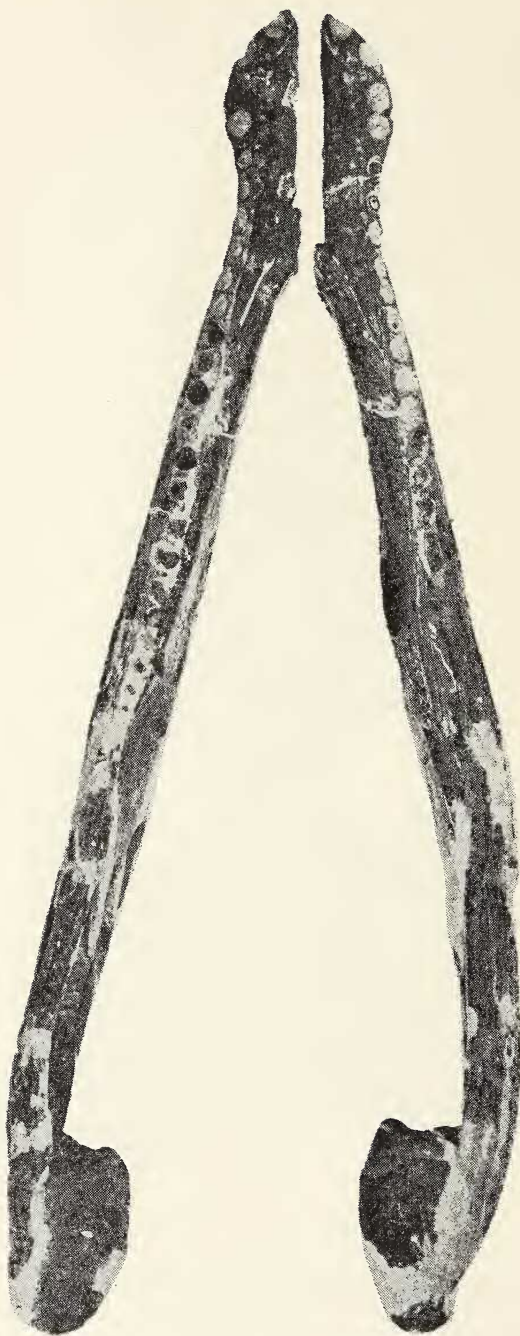


Plate 3. *Eutretauranosuchus delfsi* n.gen., n.sp. Type, lower jaw, C.M.N.H. No. 8028. Superior view of the two rami, not joined together. Two-thirds natural size.





Plate 4. *Eutretauranosuchus delfsi* n.gen., n.sp. Type, lower jaw, C.M.N.H. No. 8028. Upper figure: left ramus, external view; lower figure: right ramus, external view. Two-thirds natural size.



Plate 5. *Eutretauranosuchus delfsi* n.gen., n.sp. Type, lower jaw, C.M.N.H. No. 8028. Upper figure: left ramus, internal view; lower figure: right ramus, internal view. Two-thirds natural size.